

## CLINICAL PRACTICE

# Preparing graduate nursing faculty for the implementation of virtual simulation using simulation facilitation best practices

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## ABSTRACT

Facilitating successful simulations in a virtual environment requires an understanding of best practices for simulation. A faculty simulation training, including didactic and simulation skills practice, was developed and implemented in a graduate program, preparing faculty in best practices for simulation facilitation and instruction. The quality improvement project utilized the Healthcare Simulation Standards of Best Practice in Facilitation. Faculty practiced instructional best practices using a mid-fidelity simulation and transferred their experiences to the virtual simulation teaching environment. The project outcomes were achieved, reflecting the implementation of simulation best practices in the virtual simulation of the graduate program's courses.

**Key Words:** Faculty simulation training, Graduate nursing faculty, Mid-fidelity simulation, Simulation facilitation best practices, Virtual simulation

## 1. INTRODUCTION/BACKGROUND

Simulation-based learning is frequently employed in nursing education to prepare students for clinical practice.<sup>[1]</sup> Simulation provides a safe, controlled environment for experiential learning, allowing participants to practice skills and make mistakes without compromising patient safety.<sup>[1,2]</sup> Clinical judgment, critical thinking, decision making, and skill development are fostered through simulation.<sup>[1]</sup> Various simulation modalities exist, such as web-based and face-to-face, for undergraduate and graduate education.<sup>[3]</sup> The use of virtual simulation (VS) in graduate nursing programs is increasing, providing students with ease of access and flexibility in learning.<sup>[4]</sup> VS is a web-based platform that effectively enables learners to engage with interactive patient care scenarios, promoting clinical reasoning and diagnostic skills.<sup>[5,6]</sup>

A Doctor of Nursing Practice Family Nurse Practitioner (DNP-FNP) program had a newly established hybrid program that did not include simulation-based education in its curricular plan of study, which was identified as a potential gap in DNP-FNP student experiential learning opportunities. After careful review, the faculty teaching in the DNP-FNP program adopted VS to enhance student clinical learning experiences. Specifically, VS was identified as a learning modality for DNP-FNP students to promote critical thinking and clinical judgment skills, augmenting clinical hours and limited clinical placements. The VS platform selected offered personalized learning scenarios with individualized feedback for students. Repetitive clinical simulation practice, along with opportunities for self- and peer-reflection, are primary strategies in nursing simulation experiences.<sup>[5,6]</sup>

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However, the selected VS software did not provide opportunities for prebriefing and debriefing with the instructor and peers. To fill this gap, faculty (N = 6) were trained on simulation facilitation best practices to integrate prebriefing and debriefing into the student VS learning experience. Preparing graduate faculty for the adoption of VS in the curriculum became the impetus for creating a quality improvement project to improve simulation pedagogy and apply skills to VS.

## 2. PROJECT DESIGN

The graduate program quality improvement project involved creating a two-hour faculty simulation training aligned with the International Nursing Association for Clinical Simulation and Learning Healthcare Simulation Standards of Best Practice (HSSOBP),<sup>[7]</sup> preparing the graduate faculty to incorporate VS in their online didactic DNP-FNP clinical courses. A faculty member with over a decade of simulation expertise created and facilitated the training, which consisted of an in-person didactic session in the first hour and hands-on skills practice in the second hour. The training learning outcomes aligned with the five HSSOBP facilitation criteria<sup>[7]</sup> and included the following:

- 1) Ensure that facilitators possess knowledge and skills in simulation pedagogy.
- 2) Align the facilitative approach with the participants' knowledge and competency.
- 3) Incorporate prebriefing strategies and activities to prepare participants for the simulation activity.
- 4) Evaluate and deliver cues to support participants in achieving simulation learning outcomes.
- 5) Include participant debriefing and instructor support after the simulation activity and beyond.

The simulation expert implemented face-to-face faculty training using the five HSSOBP facilitation criteria, developing a scenario representative of clinical situations commonly encountered by advanced practice nurses. HSSOBP criterion 1 was met by providing faculty with didactic instruction on simulation facilitation best practices, simulation modalities, and establishing learner psychological safety, thereby promoting the transfer of prebriefing and debriefing skills to the VS environment.<sup>[7]</sup> These simulation skills were transferred to the online setting through the creation of a student VS assignment. The assignment was an asynchronous online discussion specifically designed for DNP-FNP students. It included a description of the clinical relevance of VS, instructions on navigating the web-based platform, and assignment guidelines. Additionally, students review the prebriefing and debriefing discussion questions before completing the VS, providing simulation cues and opportunities for collaborative debriefing with their peers and faculty. After completing the

VS, students answer the first three questions and then select one from the remaining options to respond to using their VS performance report from the VS platform, with each student choosing a different question. The following open-ended debriefing questions encourage students to critically reflect on their VS experience, as the VS platform did not provide a collaborative space for students to debrief with faculty and peers.

- 1) Using your performance report, how many items on the physical exam were performed correctly? How many physical exam items were missed? Why do you think you missed them?
- 2) If you were to repeat the case, would you do anything differently?
- 3) What can you apply from the case to your NP clinical practice?
- 4) Do you have any unanswered questions about the VS case?
- 5) Under the case section, what did you score highest in? What do you think contributed to that?
- 6) Under the case section, what did you score lowest in? What do you think contributed to that?
- 7) How many history questions did you ask? Are there any you would have asked if you were to do the case again?
- 8) How many key findings did you identify? How many were listed for the case? If you missed any key findings, why do you think that is?
- 9) How many differentials did you identify? How many were listed for the case? If you missed any differentials, what do you think is the reason?
- 10) Did you identify the correct diagnosis? If so, how did you come to that conclusion? What do you think contributed to not identifying it correctly if you did not?

During the second hour of the training, the graduate faculty participated in a face-to-face pediatric diabetic ketoacidosis mid-fidelity simulation scenario leveled to their knowledge and experience, addressing facilitation criterion 2.<sup>[7]</sup> The 10-minute scenario required the faculty to address pediatric assessment, differential diagnosis, labs, and referrals at the nurse practitioner's scope of practice. The simulation experience provided faculty with an opportunity to participate in a simulation scenario where most were not experienced in simulation. After the simulation, the faculty selected VS scenarios from the VS platform that the DNP-FNP students would complete as part of their curriculum. The chosen scenarios were tailored to their learning and competency levels and aligned with the course learning outcomes. Faculty had previously been trained on the VS platform and how to navigate the platform by a company representative.

To fulfill facilitation criterion 3, faculty reviewed simula-

tion best practices in the training, including how to prebrief participants.<sup>[7]</sup> Before the face-to-face simulation scenario, faculty participated in a prebrief, which oriented them to the environment and their role as participants, promoted psychological safety, and included a patient report. The faculty reviewed the student VS assignment template information that the students would use to prebrief for completing the VS scenarios. During the training, faculty members observed how prebriefing skills can effectively be transferred to the online environment.

During the faculty simulation, environmental and manikin cues were provided to help them achieve facilitation criterion 4.<sup>[7]</sup> The mid-fidelity pediatric manikin was connected to a monitor that displayed vital signs, which changed in response to the patient's condition, and lab personnel acted as the patient's voice. These cues helped guide the faculty through the simulation to achieve the outcomes. Similarly, the VS software used by the students provides cues and feedback to guide them through the scenarios.<sup>[8]</sup> In addition, the faculty reviewed the reflection questions in the student VS assignment template, which cue students on what to focus on as they complete the VS scenarios. For the evaluation component of criterion 4, the student's performance in the VS scenario is assessed, and a performance report is generated by the VS platform, indicating what was performed correctly and what was missed.<sup>[7]</sup>

For Criterion 5, faculty members received training in debriefing elements and techniques before the simulation experience, as per the facilitation standard.<sup>[7]</sup> They also participated in a debriefing after the face-to-face mid-fidelity simulation, using the Plus-Delta<sup>[9]</sup> and Promoting Excellence and Reflective Learning in Simulation (PEARLS)<sup>[10]</sup> models, and learned how to apply debriefing techniques in the VS environment to facilitate engagement. The student debriefing process in the VS assignment template involves students utilizing the VS performance report to answer online discussion reflection questions in the learning management system, engaging with their peers. Students also have an opportunity to address any unanswered questions with faculty.

### 3. DISCUSSION

The faculty simulation training integrated the HSSOBP criteria, supporting knowledge transfer from face-to-face simulation facilitation to the VS environment. A total of six graduate faculty completed the training, all of whom were certified advanced practice nurses. Faculty participants had no experience teaching VS, emphasizing the need for the training to transition advanced practice nursing knowledge and educational training from the face-to-face setting to the

VS environment. Following the simulation training, faculty feedback was collected through a confidential survey. Survey questions were designed to assess faculty members' general perceptions of their knowledge of simulation facilitation best practices, using the HSSOBP facilitation criteria and applying it to VS. The survey had 10 Likert-scale questions. Survey questions assessed faculty knowledge of simulation best practices and student simulation debriefing in an online learning environment. The DNP-FNP faculty (N = 5) provided feedback indicating that the simulation training on the HSSOBP in facilitation enhanced their simulation knowledge and skills, enabling them to transfer these skills to the VS classroom.

To promote HSSOBP in the online learning environment, an assignment template was created for faculty to upload to the learning management system, allowing students to use it when completing the VS scenarios. The assignment includes a prebrief, directions for accessing the VS scenarios, cues to guide students through the scenarios, and a self-debrief and online discussion to review the students' performance.

Strengths of the training included the participation of all faculty members (N = 6). The implementation of an in-person faculty training that included didactic instruction on the HSSOBP facilitation criteria, a mid-fidelity simulation exercise, and a debriefing. The training applied in-person simulation requirements of prebriefing and debriefing to the VS setting, which improved the faculty's simulation knowledge acquisition for promoting quality simulation debriefing experiences in the online course setting.

A limitation of the project was the low sample size. A larger sample size may have yielded different results in the survey. An additional limitation was the lack of a post-implementation review after faculty began facilitating VS in their courses. The review may have revealed gaps in the current training process and areas for improvement to enhance faculty readiness for supporting student learning in the VS setting.

### Recommendation

This quality improvement project gives the steps to prepare faculty to implement VS into DNP-FNP student courses. Future research would be beneficial in exploring faculty perceptions of teaching VS in their online courses, including whether they felt adequately prepared to integrate prebriefing and debriefing, and future training needs. An additional area for future research is to investigate students' perceptions of the impact of online prebriefing and debriefing on their VS learning experience.

## 4. CONCLUSION

For this quality improvement project, DNP-FNP faculty participated in a didactic and hands-on mid-fidelity simulation training that aligned with HSSOBP in facilitation, applying these principles in the VS setting. The faculty reflected on their training experience using the HSSOBP facilitation criteria and expressed increased comfort and knowledge of implementing and facilitating VS in their courses. Having faculty who share that they feel more confident and knowledgeable about facilitating simulation can more effectively support student learning experiences. The outcomes of the quality improvement project were achieved by implementing simulation best practices in the VS of the graduate program's courses.

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## AUTHORS CONTRIBUTIONS

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Obtained.

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## DATA SHARING STATEMENT

No additional data are available.

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